UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,946	12/03/2002	Aaron Joseph Simon	122020	8368

23465 7590 04/22/2005

JOHN S. BEULICK
C/O ARMSTRONG TEASDALE, LLP
ONE METROPOLITAN SQUARE
SUITE 2600
ST LOUIS, MO 63102-2740

EXAMINER	
SOLIS, ERICK R	
ART UNIT	**PAPER NUMBER**
3747	

DATE MAILED: 04/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/065,946	SIMON ET AL.	
	Examiner	Art Unit	
	Erick R Solis	3747	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-17 and 19-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-17 and 19-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1,2,4-17 and 19-35 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In particular, applicant claims pressure and temperature regulation of a pre-determined quantity of fuel to a cylinder of an engine. The specification, however, does not provide any details of the structure or steps for carrying out the temperature and pressure regulation of the pre-determined quantity of fuel. Such a teaching is critical and especially since applicant is asserting that novelty resides in said claimed features.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1,2 and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Blazejovsky (US Patent No. 4600825). This reference teaches a compression ignition engine

fueled with diesel having pressure regulation (12) and temperature regulation (13-15,25). Inherently, the fuel injection is timed to the piston stroke and will occur during the claimed times of intake or compression, as is typical in compression ignition engines.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1,2,5,8-17,22-24,27 and 31are rejected under 35 U.S.C. 103(a) as being unpatentable over Gallione et al (US Patent No. 4228776) in view of Blazejovsky (see above). Gallione et al teach a compression ignition engine (see Fig. 2) fueled with diesel having temperature regulation (15,24), see also col. 1, lines 16-23. This reference also teaches a return line (8) for returning excess fuel. Typically it is known in the art to include a pressure control valve at this point to regulate the pressure downstream of the fuel pump. Gallione et al appear to be silent regarding a pressure regulation valve (although what applicant is claiming could be argued to be inherent, since pressure has to be "regulated" in some form since at least a minimum pressure is required to be able to inject into the combustion chamber). Blazejovsky teaches as is well known in the art to include such a pressure regulation valve (12) downstream of the pump (3) for regulating fuel pressure to the injector (see col. 2, lines 54-56). It would have been obvious to one of ordinary skill in the art to have includes a pressure regulation valve in Gallione et al fuel supply arrangement, as taught by Blazejovsky, since this would have

allowed for better control of fuel supply by providing a controlled fuel pressure. Inherently, the fuel injection is timed to the piston stroke and will occur during the claimed times of intake or compression, as is typical in compression ignition engines. pressure regulation (8). Furthermore, the combination of Gallione et al and Blazejovsky do not teach the engine being used in a railroad locomotive, the claimed number of cylinders or the equivalence ratio. It would have been obvious to have applied this type of fuel temperature regulating set up to a railroad diesel locomotive engine, so as to maintain the fuel temperature within a predetermined temperature range considered necessary for optimum operation of the engine. Furthermore, the number of cylinders is considered to be an obvious matter of design choice as is the equivalence ratio.

7. Claims 5,8-10,15-17,22-24,27 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gallione et al. Gallione et al applies as above, but does not teach the engine being used in a railroad locomotive, the claimed number of cylinders or the equivalence ratio. It would have been obvious to have applied this type of fuel temperature regulating set up to a railroad diesel locomotive engine, so as to maintain the fuel temperature within a predetermined temperature range considered necessary for optimum operation of the engine. Furthermore, the number of cylinders is considered to be an obvious matter of design choice as is the equivalence ratio.

8. Claims 1,2,4,7,8,11-14,22, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dickey in view of Gallione et al and Blazejovsky. See Dickey, the abstract, col. 2, line 65; col. 3, lines 7+ ; col. 4, lines 39+ ; and col. 5, lines 1,2 and 39-41. Dickey,

however, does not teach fuel temperature regulation. Inherently, pressure is regulated. Gallione et al teaches regulating the temperature of fuel in a compression ignition engine, see col. 1, lines 16-23 and Fig. 2. It would have been obvious to one of ordinary skill in the art to have regulated the fuel temperature of Dickey's fuel, as taught by Gallione et al, since this would have aided in regulating the temperatures of the air/fuel charge and combustion.

9. Claims 1,2,5,8-10,12-17, 22-24, 27 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeLuca in view of Gallione et al. See DeLuca, the abstract and col. 1, lines 5+. DeLuca, however, does not teach fuel temperature regulation. Gallione et al teaches regulating the temperature of fuel in a compression ignition engine, see col. 1, lines 16-23 and Fig. 2. It would have been obvious to one of ordinary skill in the art to have regulated the fuel temperature of DeLuca's fuel, as taught by Gallione et al, since this would have aided in regulating the temperatures of the air/fuel charge and combustion. Furthermore, the number of cylinders is considered to be an obvious matter of design choice.

10. Claims 1,2,5-17 and 19-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ancimer et al. in view of Gallione et al. See Ancimer et al, the abstract, and paragraph 28. Ancimer et al, however, do not teach fuel temperature regulation. Gallione et al teaches regulating the temperature of fuel in a compression ignition engine, see col. 1, lines 16-23 and Fig. 2. It would have been obvious to one of ordinary skill in the art to have regulated the fuel temperature of Ancimer et al's fuel, as taught by Gallione et al, since this would have aided in

regulating the temperatures of the air/fuel charge and combustion. Furthermore, the number of cylinders is considered to be an obvious matter of design choice as is the equivalence ratio.

11. Claims 1,2,5,6,8,9,13-16,19-23,27-31 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu (US Patent No. 5365902) in view of Gallione et al. See col. line 14 ; col. 4, line 20 and col. 5, lines 24+. Hsu, however, does not teach fuel temperature regulation. Pressure control is inherent. Gallione et al teaches regulating the temperature of fuel in a compression ignition engine, see col. 1, lines 16-23 and Fig. 2. It would have been obvious to one of ordinary skill in the art to have regulated the fuel temperature of Hsu's fuel, as taught by Gallione et al, since this would have aided in regulating the temperatures of the air/fuel charge and combustion.

Response to Arguments

12. Applicant's arguments filed 2 December 2004 have been fully considered but they are not persuasive. In particular, regarding the 35 USC 102(b) rejection of claims 1,2 and 11-14 as being anticipated by Blazejovsky applicant argues that Blazejovsky does not teach temperature "regulation" of a pre-determined amount of fuel. The examiner disagrees since "regulation" is a broad term and applicant has not provided an adequate disclosure, as to how "regulation" is carried out in his invention. Regarding the argument that Blazejovsky does not teach pressure "regulation", the examiner again disagrees since Blazejovsky teaches a pressure regulating valve (12, see col. 2, lines 54-56). Furthermore, applicant has not provided an adequate disclosure as to how the pressure "regulation" is carried out.

Regarding the 35 USC 102 rejection of claims 1,2 and 11-14 as being anticipated by Gallione et al, applicant's arguments are now moot since that rejection has been modified to a 103 rejection, as above. Applicant's remaining arguments all hinge on whether or not fuel temperature and pressure "regulation" are taught for a pre-determined fuel amount. The examiner's position is that "regulation" is a broad term and in so far as it applies to "regulating" the pressure most if not all engines will have some form of fuel pressure regulation so as to be able to meter an accurate amount of fuel.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erick R Solis whose telephone number is (571) 272-4853. The examiner can normally be reached on Monday-Thursday.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-3700.

Erick R Solis
Primary Examiner
Art Unit 3747

ers
April 20, 2005